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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,270	01/31/2002	Keith W. Holt	01-869	4428
24319	7590	12/10/2004	EXAMINER	
LSI LOGIC CORPORATION 1621 BARBER LANE MS: D-106 MILPITAS, CA 95035			TORRES, JOSEPH D	
			ART UNIT	PAPER NUMBER
			2133	

DATE MAILED: 12/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/066,270

Applicant(s)

HOLT, KEITH W.

Examiner

Joseph D. Torres

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 September 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 and 13-31 is/are pending in the application.
- 4a) Of the above claim(s) 14-22 and 29-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-11, 13 and 23-28 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. <u>20041203</u> . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____.  |

## DETAILED ACTION

### *Election/Restrictions*

Newly submitted claims 29-31 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claim 29 is directed specifically to a Cyclic redundancy Check (CRC) including steps (highlighted below) specific to CRC not previously considered, such as, "reading a data block from the data disk drive **into a memory of the disk drive controller**; reading Cyclic Redundancy Check metadata **associated with the data block**, the Cyclic Redundancy Check metadata being stored on the Cyclic Redundancy Check drive, wherein the Cyclic Redundancy Check drive is a disk drive separated from the data disk drive; generating Cyclic Redundancy Check for the data block read from the data disk drive; **comparing the Cyclic Redundancy Check metadata and the generated Cyclic Redundancy Check for a first test**; if the Cyclic Redundancy Check metadata matches the generated Cyclic Redundancy Check, then accepting the data block read from the data disk drive as valid; if the Cyclic Redundancy Check metadata does not match the generated Cyclic Redundancy Check, reconstructing the data block, then regenerating Cyclic Redundancy Check based on the reconstructed data block, and comparing the Cyclic Redundancy Check metadata and the regenerated Cyclic Redundancy Check for a second test; if the regenerated Cyclic Redundancy Check metadata matches the Cyclic Redundancy Check metadata, then accepting the reconstructed data block as valid; and if the

**regenerated Cyclic Redundancy Check metadata does not match the Cyclic Redundancy Check metadata, then accepting the data block read from the data disk drive as valid”** [Emphasis Added]. Note: Claim 29 is classified in 714/758 and claim 29 does not have certain features in previously examined claims such as “in parallel with the reading of the data from the data disk drive and the generating an error detection and correction code from the data read from the data disk drive, reading error detection and correction code metadata” in claim 1. Claim 23 has been modified to include the following language not included in claim 29, “**reading error detection and correction code metadata associated with data read from a data disk drive: generating error detection and correction code for the data;** determining data validity of data read from the data disk drive based on the **error detection and correction code metadata** and the generated error detection and correction code.” Note: CRC checks are redundancy bits used in error detection, but are not an error detection and correction code since they are not codewords themselves (Note: a codeword is a representation  $f(w)$  of an original word  $w$  and a Cyclic Redundancy Check does not include the original word from which it was derived).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 29-31 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-11 and 13, drawn to A method for data recovery in a disk drive system wherein **the disk drive system includes a data disk drive and a disk drive controller**, comprising the steps of: reading data from the data disk drive; generating an error detection and correction code from the data read from the data disk drive; and **in parallel with the reading of the data from the data disk drive and the generating an error detection and correction code from the data read from the data disk drive, reading error detection and correction code metadata**, wherein the error detection and correction code metadata is stored in a disk drive separate from the data read from the data disk drive, classified in class 714, subclass 757.
- II. Claims 23-28, drawn to A method of disk drive data detection and recovery, comprising **reading error detection and correction code metadata associated with data read from a data disk drive**; generating error detection and correction code for the data; **determining data validity of data read from the data disk drive based on the error detection and correction code metadata and the regenerated error detection and correction code** wherein the error detection and correction code metadata is stored in a disk drive separate from the data disk drive., classified in class 714, subclass 770.

The inventions are distinct, each from the other because of the following reasons:

Inventions Group I and Group II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention Group I has separate utility such as for a disk drive system wherein **the disk drive system includes a data disk drive and a disk drive controller**, comprising the steps of: reading data from the data disk drive; generating an error detection and correction code from the data read from the data disk drive; and in parallel with the reading of the **data from the data disk drive and the generating an error detection and correction code from the data read from the data disk drive, reading error detection and correction code metadata**. In the instant case, invention Group II has separate utility such as **reading error detection and correction code metadata associated with data read from a data disk drive**; generating error detection and correction code for the data; **determining data validity of data read from the data disk drive based on the error detection and correction code metadata and the regenerated error detection and correction code**. See MPEP § 806.05(d).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

A telephone call was made to Sunah K. Lee on 12/2/2004 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

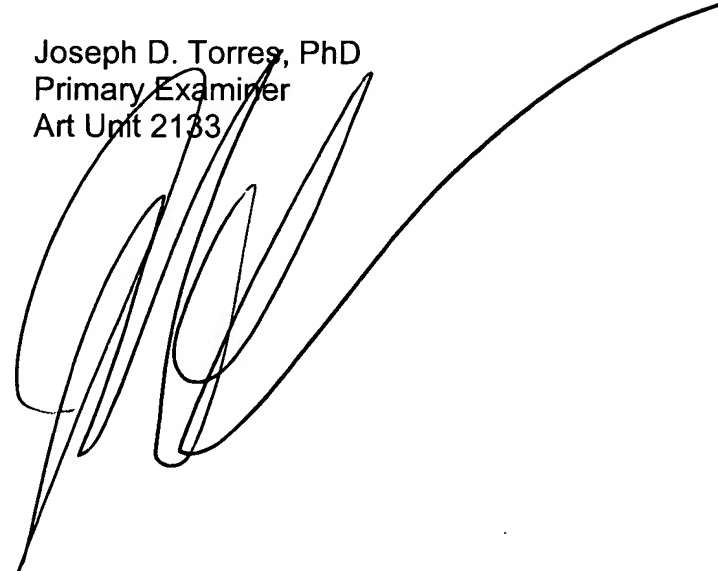
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (571) 272-3829. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joseph D. Torres, PhD  
Primary Examiner  
Art Unit 2133

A large, stylized handwritten signature in black ink, written over the printed name and title of the examiner. The signature is fluid and cursive, with a long horizontal stroke extending to the right.